LESSON 5:
PLANT TISSUE CULTURE METHODS SUPPLEMENT FOR QUIZ

Goals

The student is introduced to two basic plant tissue culture techniques (micropropagation and callus induction) and the processes involved.

Objectives

1. To examine plant tissue laboratories and facilities
2. To describe medium preparation
3. To describe explant preparation
4. To identify aseptic techniques

The students are divided into four to five groups. Topic of the Quiz is given in advance. The students have to come prepared for the topic, for example, all the lessons comprising Unit I are chosen for the competition. The questions selected from Unit I may be as follows:

Plant Tissue Culture Methods

Quiz

Short Answer

1. According to you, when can cross contamination occur in the laboratory?
2. Which two main factors are controlled in an environmentally controlled culture area?
3. Name three substances contained in most mediums.
4. What is the name of the most commonly used inorganic salt stock?
5. Why are vitamins added to the medium?
6. What is the result of an inaccurate pH level on the agar?
7. What factors must be taken into consideration in explant selection?
8. In simple propagation, which parts of the plant produce the best results?
9. How does an autoclave sterilize instruments?
10. How many pieces of leaf tissue can be produced from one African violet leaf?

True or False

_____1. Runner tips are washed in warm soapy water to sterilize them.

_____2. Instruments should be flamed with the instrument pointing down, towards your hand.

_____3. Two days of high humidity are required to acclimatize plant tissue culture from the in vitro environment to the greenhouse.

_____4. Flamed instruments should be left to cool before use.

_____5. Wrapping the tubes with tape prevents insects from entering them.

Plant Tissue Culture Methods

Answer Key

Short Answer

1. According to you, when can cross contamination occur in the laboratory?

   When a sterile sample is placed in contact with a contaminated sample

2. Which two main factors are controlled in an environmentally controlled culture area?

   Light and temperature

3. Name three substances contained in most mediums.

   Inorganic salts, plant growth regulators, vitamins, carbohydrates, gelling agents, antibiotics, and amino acids

4. What is the name of the most commonly used inorganic salt stock?

   Murashige and Skoog

5. Why are vitamins added to the medium?

   They provide a catalytic function in enzyme reactions

6. What is the result of an inaccurate pH level on the agar?

   The agar will be loose and will not solidify

7. What factors must be taken into consideration in explant selection?

   Age, season, size, quality of source plant, and goal of cell culture

8. In simple propagation, which parts of the plant produce the best results?

   Shoot apex or lateral buds

9. How does an autoclave sterilize instruments?

   With high temperature steam under pressure

10. How many pieces of leaf tissue can be produced from one African violet leaf?

    4 to 6 pieces

True or False

F 1. Runner tips are washed in warm soapy water to sterilize them. to remove external particles

F 2. Instruments should be flamed with the instrument pointing down, towards your hand. they should be parallel burned

F 3. Two days of high humidity are required to acclimatize plant tissue culture from the in vitro environment to the greenhouse. two weeks of high humidity

T 4. Flamed instruments should be left to cool before use.

T 5. Wrapping the tubes with tape prevents insects from entering them.